WHAT IS CLAIMED IS

1. An image reading apparatus for reading an image of original, said apparatus comprising:

photoelectric conversion means for converting light from the original into an image signal;

first correction means for correcting a white level of the image signal;

storage means for storing white reference data for white level correction in correspondence with a reference temperature;

detection means for detecting a temperature near said photoelectric conversion means; and

second correction means for correcting the reference white data on the basis of a temperature difference between the temperature detected by said detection means and the reference temperature,

wherein the white level is corrected by said first correction means using the white reference data corrected by said second correction means.

2. The apparatus according to claim 1, further comprising a light source for illuminating the original.

3. The apparatus according to claim 2, wherein said light source comprises a plurality of light sources having different colors.

4. The apparatus according to claim 2, wherein said light source is an LED.

5. The apparatus according to claim 3, further comprising control means for turning on said plurality of light sources in a predetermined order.

6. The apparatus according to claim 3, wherein a plurality of white reference data respectively corresponding to said plurality of light sources having the different colors are stored in said storage means.

7. The apparatus according to claim 1, wherein said photoelectric conversion means is a CCD line sensor.

8. The apparatus according to claim 2, wherein said light source, said photoelectric conversion means, and said first correction means are included in an image reading device detachable from said apparatus.

9. The apparatus according to claim 8, wherein said image reading device comprises sending means for sending the image signal to said apparatus.

10. The apparatus according to claim 8, wherein said image reading device comprises analog to digital conversion means for converting a signal read by said photoelectric conversion means into a digital signal.

11. The apparatus according to claim 8, wherein said image reading device comprises optical means for guiding light emitted from said light source to the original and guiding light reflected by the original to said photoelectric conversion means.

12. The apparatus according to claim 8, further

comprising a carriage on which a print head unit for forming an image on a printing medium is detachably mounted,

wherein said image reading device is detachably mounted on said carriage.

13. The apparatus according to claim 12, wherein said image reading device comprises sending means for sending the image signal to said apparatus through an interface for said print head unit.

14. An image reading device detachably attached to an image processing apparatus having storage means for storing white reference data for white level correction in correspondence with a reference temperature, detection means for detecting a temperature near said photoelectric conversion means, and first correction means for correcting the white reference data on the basis of a temperature difference between the temperature detected by said detection means and the reference temperature, said device comprising:

photoelectric conversion means for converting light from the original into an image signal; and

second correction means for correcting a white level of the image signal,

wherein the white level is corrected by said second correction means using the white reference data corrected by said first correction means.

15. The device according to claim 14, further comprising a light source for illuminating the original.

16. The device according to claim 15, wherein said light source comprises a plurality of light sources having different colors.

17. The device according to claim 15, wherein said light source is an LED.

18. The device according to claim 14, further comprising control means for turning on said plurality of light sources in a predetermined order.

19. The device according to claim 14, further comprising analog to digital conversion means for converting a signal read by said photoelectric conversion means into a digital signal.

20. The device according to claim 14, further comprising optical means for guiding light emitted from said light source to the original and guiding light reflected by the original to said photoelectric conversion means.

21. The device according to claim 14, wherein said apparatus comprises a carriage on which a print head unit for forming an image on a printing medium is detachably mounted, and said image reading device is detachably mounted on said carriage.

22. The device according to claim 21, further comprising sending means for sending the image signal to

said apparatus through an interface for said print head unit.

23. An image reading apparatus for reading an image of original, said apparatus comprising:

photoelectric conversion means for converting light from the original into an image signal;

amplification means for amplifying the image signal;

detection means for detecting a peak level of an image signal corresponding to a pixel within an effective pixel range of said photoelectric conversion means and a peak level of an image signal corresponding to a pixel outside the effective pixel range on the basis of an image signal for a white reference obtained from said photoelectric conversion means; and

setting means for comparing the peak levels detected by said detection means and setting an amplification factor of said amplification means on the basis of the comparison result.

24. The apparatus according to claim 23, further comprising a light source for illuminating the original.

25. The apparatus according to claim 24, wherein said light source comprises a plurality of light sources having different colors.

26. The apparatus according to claim 24, wherein said light source is an LED.

27. The apparatus according to claim 25, further comprising control means for turning on said plurality of light sources in a predetermined order.

28. The apparatus according to claim 25, wherein said detection means detects the peak level for each color of said plurality of light sources.

29. The apparatus according to claim 23, wherein said photoelectric conversion means is a CCD line sensor.

30. The apparatus according to claim 23, wherein said light source, said photoelectric conversion means, and said first correction means are included in an image reading device detachable from said apparatus.

31. The apparatus according to claim 30, wherein said image reading device comprises sending means for sending the image signal to said apparatus.

32. The apparatus according to claim 30, wherein said image reading device comprises analog to digital conversion means for converting a signal read by said photoelectric conversion means into a digital signal.

33. The apparatus according to claim 30, wherein said image reading device comprises optical means for guiding light emitted from said light source to the original and guiding light reflected by the original to said photoelectric conversion means.

34. The apparatus according to claim 30, further comprising a carriage on which a print head unit for

forming an image on a printing medium is detachably mounted,

wherein said image reading device is detachably mounted on said carriage.

35. The apparatus according to claim 34, wherein said image reading device comprises sending means for sending the image signal to said apparatus through an interface for said print head unit.

36. An image reading method for reading an image of original, said method comprising the steps of:

converting light from the original into an image signal using photoelectric conversion means;

correcting a white level of the image signal;

detecting a temperature near said photoelectric conversion means; and

correcting white reference data for white level correction stored in correspondence with a reference temperature, on the basis of a temperature difference between a detected temperature and the reference temperature,

wherein the step of correcting the white level is performed using the corrected white reference data.

37. A computer program product comprising a computer readable medium having computer code, for reading an image of original by using an image reading device having photoelectric conversion means for converting

light from the original into an image signal and correction means for correcting a white level of the image signal, said product comprising:

detecting process procedure codes for detecting a temperature near said photoelectric conversion means;

correcting process procedure codes for correcting white reference data for white level correction stored in correspondence with a reference temperature, on the basis of a temperature difference between the detected temperature and the reference temperature; and

controlling process procedure codes for controlling correction process of said correcting means so as to use the corrected white reference data.

38. An image reading method for reading an image of original by using an image reading device having photoelectric conversion means for converting light from the original into an image signal and amplification means for amplifying the image signal, said method comprising the steps of:

detecting a peak level of an image signal corresponding to a pixel within an effective pixel range of said photoelectric conversion means and a peak level of an image signal corresponding to a pixel outside the effective pixel range on the basis of an image signal for a white reference obtained from said image reading device;

comparing the detected peak levels; and

setting an amplification factor of said amplification means on the basis of the comparison result.

39. A computer program product comprising a computer readable medium having computer code, for reading an image of original by using an image reading device having photoelectric conversion means for converting light from the original into an image signal and correction means for correcting a white level of the image signal, said product comprising:

detecting process procedure codes for detecting a peak level of an image signal corresponding to a pixel within an effective pixel range of said photoelectric conversion means and a peak level of an image signal corresponding to a pixel outside the effective pixel range on the basis of an image signal for a white reference obtained from said image reading device;

comparing process procedure codes for comparing the detected peak levels; and

setting process procedure codes for setting an amplification factor of said amplification means on the basis of the comparison result.

40. An image processing apparatus having a carriage on which an image reading device for reading an image of original is detachably mounted, said apparatus

comprising:

obtaining means for obtaining identification information representing an image reading device mounted on said carriage;

storage means for storing white reference data representing a white reference from said image reading device in association with identification information of the image reading device; and

setting means for reading out the white reference data from said storage means corresponding to the identification information obtained by said detection means and setting the readout white reference data in said image reading device mounted on said carriage.

41. The apparatus according to claim 40, wherein said carriage on which a print head unit for forming an image on a printing medium is detachabley mounted.

42. The apparatus according to claim 40, wherein the identification information is input by a user.

43. The apparatus according to claim 40, wherein the identification information is stored in said image reading device.

44. The apparatus according to claim 40, further comprising detection means for detecting an ambient temperature near said carriage,

wherein said storage means further stores the ambient temperature in obtaining the white reference

data.

45. An image processing apparatus having a carriage on which an image reading device for reading an image of original is detachably mounted, said apparatus comprising:

detection means for detecting an ambient temperature near said carriage;

storage means for storing white reference data representing a white reference from said image reading device in association with an ambient temperature in obtaining the white reference data; and

obtaining means for obtaining white reference data of an image reading device mounted on said carriage;

setting means for reading out white reference data similar to the white reference data obtained by said obtaining means from said storage means and setting the readout white reference data in said image reading device mounted on said carriage.

46. The apparatus according to claim 45, wherein said carriage on which a print head unit for forming an image on a printing medium is detachabley mounted.

47. The apparatus according to claim 45, wherein said setting means determines the similar white reference data on the basis of variance of the obtained white reference data.

48. The apparatus according to claim 45, wherein said

setting means stores obtained white reference data when the similar white reference data is not stored in said storage means.

49. An image reading method for an image processing apparatus having a carriage on which an image reading device for reading an image of original is detachably mounted, said method comprising the steps of:

obtaining identification information representing an image reading device mounted on said carriage;

reading out white reference data corresponding to the identification information obtained in the obtaining step from storage means which stores white reference data representing a white reference from said image reading device in association with the identification information of the image reading device; and

setting the readout white reference data in said image reading device mounted on said carriage.

50. An image reading method for an image processing apparatus having a carriage on which an image reading device for reading an image of original is detachably mounted, said method comprising the steps of:

detecting an ambient temperature near said carriage;

obtaining white reference data of an image reading device mounted on said carriage;

reading out white reference data similar to the

similar white reference data information obtained in the obtaining step from storage means which stores white reference data representing a white reference from said image reading device in association with an ambient temperature in obtaining the white reference data; and

setting the readout white reference data in said image reading device mounted on said carriage.

51. A computer program product comprising a computer readable medium having computer program code, for reading an image of original by using an image processing apparatus having a carriage on which an image reading device for reading an image of original is detachably mounted, said product comprising:

obtaining process procedure codes for obtaining white reference data of an image reading device mounted on said carriage;

reading process procedure codes for reading out white reference data similar to the similar white reference data information obtained in the obtaining process from storage means which stores white reference data representing a white reference from said image reading device in association with identification information of the image reading device; and

setting process procedure codes for setting the readout white reference data in said image reading device mounted on said carriage.

52. A computer program product comprising a computer readable medium having computer program code, for reading an image of original by using an image processing apparatus having a carriage on which an image reading device for reading an image of original is detachably mounted, said product comprising:

detecting process procedure codes for detecting an ambient temperature near said carriage;

obtaining process procedure codes for obtaining white reference data of an image reading device mounted on said carriage;

reading process procedure codes for reading out white reference data similar to the similar white reference data information obtained in the obtaining process from storage means which stores white reference data representing a white reference from said image reading device in association with an ambient temperature in obtaining the white reference data; and

setting process procedure codes for setting the readout white reference data in said image reading device mounted on said carriage.

53. An image processing apparatus having a carriage on which an image reading device for reading an image of original is detachably mounted, said apparatus comprising:

detection means for detecting an ambient

temperature near said carriage;

storage means for storing white reference data representing a white reference from said image reading device on the basis of a plurality of image reading conditions, in association with each image reading condition and an ambient temperature in obtaining the white reference data; and

setting means for reading out white reference data associated with an image reading condition set by a user from said storage means and setting the readout white reference data in said image reading device mounted on said carriage.

54. The apparatus according to claim 53, wherein said carriage on which a print head unit for forming an image on a printing medium is detachably mounted.

55. The apparatus according to claim 53, wherein the image reading conditions include an image reading mode representing an attribute of image data obtained by said image reading device, and said setting means sets in said image reading device white reference data having a characteristic corresponding to the image reading mode.

56. The apparatus according to claim 55, wherein the attribute of the image data includes at least one of a color/monochrome, a resolution, and a bit depth.

57. The apparatus according to claim 55, wherein the characteristic corresponding to the data reading mode

includes a charge accumulation time of a charge-coupled device.

58. An image reading method for an image processing apparatus having a carriage on which an image reading device for reading an image of original is detachably mounted, said method comprising the steps of:

detecting an ambient temperature near said carriage;

reading out white reference data associated with an image reading condition set by a user from storage means which stores white reference data representing a white reference from said image reading device on the basis of a plurality of image reading conditions, in association with each image reading condition and an ambient temperature in obtaining the white reference data;

setting the readout white reference data in said image reading device mounted on said carriage.

59. A computer program product comprising a computer readable medium having computer program code, for reading an image of original by using an image processing apparatus having a carriage on which an image reading device for reading an image of original is detachably mounted, said product comprising:

detecting process procedure codes for detecting an ambient temperature near said carriage;

reading process procedure codes for reading out

white reference data associated with an image reading condition set by a user from storage means which stores white reference data representing a white reference from said image reading device on the basis of a plurality of image reading conditions, in association with each image reading condition and an ambient temperature in obtaining the white reference data;

setting process procedure codes for setting the readout white reference data in said image reading device mounted on said carriage.

60. An image processing apparatus having a carriage on which an image reading device for reading an image of original is detachably mounted, said apparatus comprising:

obtaining means for obtaining identification information representing an image reading device mounted on said carriage;

storage means for storing white reference data representing a white reference from said image reading device in association with the identification information of the image reading device;

determination means for determining whether white reference data corresponding to the identification information from said obtaining means is stored in said storage means;

updating means for updating the white reference

data stored in said storage means to new white reference data obtained from said image reading device mounted on said carriage when the determination result of said determination means determines that the white reference data corresponding to the identification information is not stored in said storage means; and

setting means for setting the white reference data corresponding to the identification information from said obtaining means in said image reading device mounted on said carriage.

61. The apparatus according to claim 60, wherein said carriage on which a print head unit for forming an image on a printing medium is detachably mounted.

62. The apparatus according to claim 60, wherein the identification information is input by a user.

63. The apparatus according to claim 60, wherein the identification information is stored in said image reading device.

64. The apparatus according to claim 60, further comprising detection means for detecting an ambient temperature near said carriage,

wherein said storage means further stores the ambient temperature in obtaining the white reference data.

65. An image processing apparatus having a carriage on which an image reading device for reading an image of

original is detachably mounted, said apparatus comprising:

storage means for storing white reference data representing a white reference from said image reading device; and

obtaining means for obtaining white reference data of an image reading device mounted on said carriage;

determination means for determining whether white reference data similar to the white reference data from said obtaining means is stored in said storage means;

updating means for updating the white reference data stored in said storage means to new white reference data obtained from said image reading device mounted on said carriage when the determination result of said determination means determines that the similar white reference data is not stored in said storage means; and

setting means for reading out the white reference data similar to the white reference data from said obtaining mean and setting the readout white reference data in said image reading device mounted on said carriage.

66. The apparatus according to claim 65, wherein said carriage on which a print head unit for forming an image on a printing medium is detachably mounted.

67. The apparatus according to claim 65, wherein said determination means determines the similar white

reference data on the basis of variance of the obtained white reference data.

68. The apparatus according to claim 65, further comprising detection means for detecting an ambient temperature near said carriage,

wherein said storage means further stores the ambient temperature in obtaining the white reference data.

69. An image reading method for an image processing apparatus having a carriage on which an image reading device for reading an image of original is detachably mounted, said method comprising the steps of:

obtaining identification information representing an image reading device mounted on said carriage;

determining whether white reference data corresponding to the obtained identification information in storage means which stores white reference data representing a white reference from said image reading device in association with the identification information of the image reading device;

updating the white reference data stored in said storage means to new white reference data obtained from said image reading device mounted on said carriage when the determination result represents that the white reference data corresponding to the identification information is not stored in said storage means; and

setting the white reference data corresponding to the obtained identification information in said image reading device mounted on said carriage.

70. An image reading method for an image processing apparatus having a carriage on which an image reading device for reading an image of original is detachably mounted, said method comprising the steps of:

obtaining identification information representing an image reading device mounted on said carriage;

determining whether white reference data similar to the obtained white reference data in storage means which stores white reference data representing a white reference from said image reading device;

updating the white reference data stored in said storage means to new white reference data obtained from said image reading device mounted on said carriage when the determination result represents that the similar white reference data is not stored in said storage means; and

reading out the white reference data similar to the obtained white reference data from said storage means and setting the readout white reference data in said image reading device mounted on said carriage.

71. A computer program product comprising a computer readable medium having computer program code, for reading an image of original by using an image

processing apparatus having a carriage on which an image reading device for reading an image of original is detachably mounted, said product comprising:

obtaining process procedure codes for obtaining identification information representing an image reading device mounted on said carriage;

determining process procedure codes for determining whether white reference data corresponding to the obtained identification information in storage means which stores white reference data representing a white reference from said image reading device in association with the identification information of the image reading device;

updating process procedure codes for updating the white reference data stored in said storage means to new white reference data obtained from said image reading device mounted on said carriage when the determination result represents that the white reference data corresponding to the identification information is not stored in said storage means; and

setting process procedure codes for setting the white reference data corresponding to the obtained identification information in said image reading device mounted on said carriage.

72. A computer program product comprising a computer readable medium having computer program code, for

reading an image of original by using an image processing apparatus having a carriage on which an image reading device for reading an image of original is detachably mounted, said product comprising:

obtaining process procedure codes for obtaining identification information representing an image reading device mounted on said carriage;

determining process procedure codes for determining whether white reference data similar to the obtained white reference data in storage means which stores white reference data representing a white reference from said image reading device;

updating process procedure codes for updating the white reference data stored in said storage means to new white reference data obtained from said image reading device mounted on said carriage when the determination result represents that the similar white reference data is not stored in said storage means; and

setting process procedure codes for reading out the white reference data similar to the obtained white reference data from said storage means and setting the readout white reference data in said image reading device mounted on said carriage.